Small Business Innovation Research/Small Business Tech Transfer

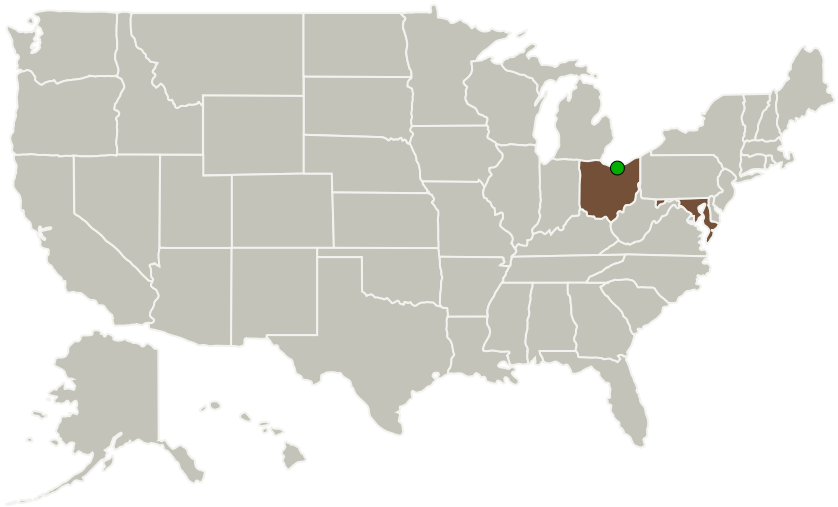
A Novel Hemispherical and Dynamic Camera for EVAs, Phase II

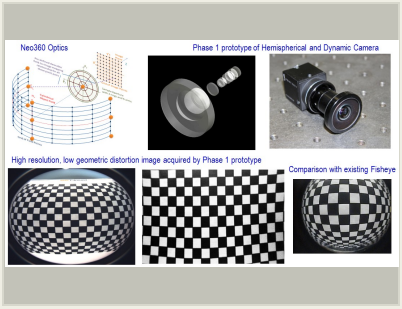
Completed Technology Project (2013 - 2015)

Project Introduction

This SBIR project is to develop a novel Hemispherical and Dynamic Camera(HDC) with ultra-wide field of view and low geometric distortion. The novel technology we proposed would lead to ultra-compact, low-power, light weight, and high resolution hemispherical camera for EVAs. We successfully completed the Phase 1 project with a novel optical design, functional prototypes, extensive experimental results and commercialization potential. All Phase 1 objectives are met and exceeded. Phase 2 program will afford us to design and build a fully functional miniature EVA camera systems, and perform extensive tests for NASA's EMU and EVA applications. Capitalizing upon the breakthrough we have made thus far, we propose the following Phase 2 technical objectives: Objective 1: Design and build a fully functional prototype of the EMU camera system; Objective 2: Carry out extensive validation experiments and improve the EMU camera prototype; Objective 3: Design and build a prototype of EVA Smart PTZ camera; Objective 4: Carry out extensive validation experiments and improve EVA Smart PTZ prototype; Objective 5: Work closely with COTR to facilitate NASA applications and broad adoption of the Neo360 optics and Smart PTZ technologies developed under this SBIR; Objective 6: Pursue commercialization of the developed Neo360 and Smart PTZ technology.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Xigen, LLC	Lead Organization	Industry	Rockville, Maryland
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

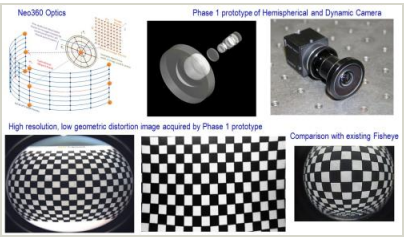
Primary U.S. Work Locations	
Maryland	Ohio

Project Transitions

July 2013: Project Start

July 2015: Closed out

Images



Project Image
A Novel Hemispherical and Dynamic Camera for EVAs
(https://techport.nasa.gov/image/126821)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Xigen, LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Jason Geng

Co-Investigator:
Jason Geng

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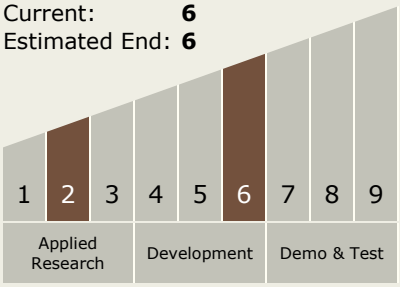
Technology Maturity (TRL)

Start: **2**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.3 Informatics and Decision Support Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System